

WHAT IS CLAIMED IS:

1 1. A process to restore and refurbish an engine part or accessory, which process
2 comprises:

3 visually inspecting said part or accessory for cracks, erosion, or broken areas;
4 machining or drilling off selected areas of said part or accessory;
5 building up said selected areas of said part or accessory in excess of finished
6 dimensions; and
7 machining said selected areas of said part or accessory to their finished dimensions.

1 2. A process to restore and refurbish an engine part or accessory as set forth in Claim
2 1 wherein said engine part is a turbo charger exhaust housing.

1 3. A process to restore and refurbish an engine part or accessory as set forth in Claim
2 1 wherein said engine part is a waste gate.

1 4. A process to restore and refurbish an engine part or accessory as set forth in Claim
2 1 wherein said engine part is a transition housing.

1 5. A process to restore and refurbish an engine part or accessory as set forth in Claim
2 1 wherein said engine part is a bearing housing.

1 6. A process to restore and refurbish an engine part or accessory as set forth in Claim
2 1 wherein said step of building up said selected areas by welding is accomplished by application of
3 a plurality of weld beads and said process includes peening with a needle scaler after application of
4 each said weld bead in order to relieve stress.

1 7. A process to restore and refurbish an airplane engine part as set forth in Claim 1
2 wherein said engine part includes a tubular portion and said process includes the step of making an
3 opening in a wall of said tubular portion to access an interior of said tubular portion.

1 8. A process to restore and refurbish an airplane engine part as set forth in Claim 7
2 including the additional step of filling said opening in said tubular portion by welding after building
3 up any eroded areas in said interior.

1 9. A process to restore and refurbish an airplane engine part as set forth in Claim 1
2 including the additional steps of grinding off any broken or cracked flanges on said part and building
3 up each said flange in excess of finished dimensions.

1 10. A process to restore and refurbish an airplane engine part as set forth in Claim 1
2 including the additional, initial steps of:
3 cleaning said part with a liquid solution to remove oil and grease residue; and
4 removing carbon and other debris by blasting said part with bead media.

1 11. A process to restore and refurbish an airplane engine part as set forth in Claim 1
2 including the additional step of applying a liquid die penetrant to said part to identify cracks therein
3 prior to welding.

1 12. A process to restore and refurbish an airplane engine part as set forth in Claim 1
2 including the additional step of preheating said part prior to building up by welding.

1 13. A process to restore and refurbish a turbo charger exhaust housing, which process
2 comprises:
3 visually inspecting said turbo charger waste housing for cracks, erosion or broken
4 areas;
5 machining or drilling off all cracks, eroded or broken areas;
6 accessing any internal cracks or erosion by making an opening in a wall of a tubular
7 portion to access an interior;
8 building up selected areas of said housing by welding an excess of finished
9 dimension; and
10 machining said selected areas of said turbo charger waste housing to their finished
11 dimensions.

1 14. A process to restore and refurbish a turbo charger exhaust housing as set forth in
2 Claim 13 wherein said selected areas include an exhaust intake mounting flange, studs in exhaust

3 flange on a wheel mounting side, and an exhaust side surface that the exhaust port mates with an
4 exhaust and a tongue area.

1 15. A process to restore and refurbish a turbo charger exhaust housing as set forth in
2 Claim 13 including the additional, initial steps of:

3 cleaning said part with a liquid solution to remove oil and grease residue; and
4 removing carbon and other debris by blasting said part with bead media.